

## STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

**TDEC-DWS** 200 East Race St Knoxville, TN 37763 Lab ID: N00004245

Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

**Billing Code:** 

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004245001

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

**Project Site No.:** 

Station No.:

Date/Time Collected:

03/09/2009 10:25

Sampler's Name:

JUSTIN FISHER

County: Sample Matrix:

ROANE - 73 Water

EFO:

Knoxville

Sampling Agency:

TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

03/09/2009 13:10

Received By:

P D Wilson

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2						
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE	
Total Alkalinity	72	mg/L	3.8	10	S Burchfield	3/10/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	61	mg/L	0.7	1	S Burchfield	3/10/2009	

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL** - Method Quantitation Limit

N00004245002

**Project Name:** 

**Sample Description:** 

KINGSTON WTP

Sampler Project Name: FINISH

**Project Site No.:** 

**Station No.:** 

Date/Time Collected: Sampler's Name:

03/09/2009 10:30 JUSTIN FISHER

County:

**ROANE - 73** 

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

**Billing Code:** Send Report To:

327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

03/09/2009 13:10

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity:

Temperature:

**Dissolved Oxygen:** 

Other: Flow:

**CFS** 

TEST: Alkalinity, Total	Alkalinity, Total METHOD: EPA 310.2							
ANALYTE	RESULT UNITS MDL MQL ANALYZED BY:							
Total Alkalinity	73	mg/L	3.8	10	S Burchfield	3/10/2009		

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	58	mg/L	0.7	1	S Burchfield	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

N00004245003

**Project Name:** 

**Sample Description:** 

**ROCKWOOD WTP** 

Sampler Project Name: FINISH

**Project Site No.:** 

**Station No.:** 

Date/Time Collected:

03/09/2009 11:20

Sampler's Name:

**JUSTIN FISHER** 

County: Sample Matrix: **ROANE - 73** 

EFO:

Water Knoxville

Sampling Agency:

TDEC-DWS

Billing Code: Send Report To: 327.39-12 **TDEC-DWS** 

Agency Invoiced:

**TDEC-DWS** 

**Priority Date:** 

Date/Time Received:

03/09/2009 13:10

Received By:

P D Wilson

**Field Determinations** pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

**CFS** 

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	84	mg/L	3.8	10	S Burchfield	3/10/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	65	mg/L	0.7	1	S Burchfield	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

N00004245004

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name: RAW

**Project Site No.:** 

**Station No.:** 

**Date/Time Collected:** 

03/09/2009 11:25

Sampler's Name: County:

**JUSTIN FISHER ROANE - 73** 

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced: TDEC-DWS TDEC-DWS

**Priority Date:** 

Date/Time Received:

03/09/2009

13:10

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature:

**Dissolved Oxygen:** 

Other: Flow:

**CFS** 

TEST: Alkalinity, Total METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MQL	ANALYZED BY:	DATE	
Total Alkalinity	90	mg/L	3.8	10	S Burchfield	3/10/2009

TEST: Hardness, Calcium METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	63	mg/L	0.7	1	S Burchfield	3/10/2009

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

**MQL - Method Quantitation Limit** 



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TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

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Geoff Klein **TDEC-DWS** 

200 East Race St Knoxville, TN 37763 Lab ID: N00004245

Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

**Billing Code:** 

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004245001

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

ted: 0

03/09/2009 10:25 JUSTIN FISHER

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: Billing Code:

TDEC-DWS 327.39-12

Send Report To:
Agency Invoiced:

TDEC-DWS TDEC-DWS

**Priority Date:** 

Date/Time Received:

03/09/2009 13:10

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	03/10/2009				A Wilson	3/10/2009	

TEST: ICP-MS	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	30	μg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.48J	μg/L	0.04	1	M Pattanayek	3/10/2009
Lead	1.3	μg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	160	μg/L	0.42	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009
Thallium	0.38J	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009

TEST: Mercury	rcury METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

**MQL - Method Quantitation Limit** 

N00004245002

**Project Name:** 

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.: Station No.:

Date/Time Collected:

03/09/2009 10:30

Sampler's Name: County:

JUSTIN FISHER ROANE - 73

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville

**Billing Code:** 

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

**Priority Date:** 

Date/Time Received: 03/09/2009 13:10

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:** 

Other: Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	ANALYZED BY:	DATE				
Digestion Metals	03/10/2009				A Wilson	3/10/2009	

TEST: ICP-MS	ME.	THOD: EPA 20	8.0			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009
Barium	21	μg/L	2.5	5	M Pattanayek	3/10/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009
Cobalt	0.11J	μg/L	0.04	1	M Pattanayek	3/10/2009
Lead	2.9	µg/L	0.10	1	M Pattanayek	3/10/2009
Manganese	3.4	μg/L	0.42	1	M Pattanayek	3/10/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009
Thallium	0.10J	μg/L	0.03	1	M Pattanayek	3/10/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009

TEST: Mercury	Mercury METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004245003

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name: FINISH

**Project Site No.: Station No.:** 

**Date/Time Collected:** 

03/09/2009 11:20 JUSTIN FISHER

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency:

TDEC-DWS

**Billing Code:** Send Report To: 327.39-12 **TDEC-DWS** 

Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

03/09/2009 13:10

Received By:

P D Wilson

**Field Determinations** 

:Hq

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:** 

Other: Flow:

**CFS** 

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	03/10/2009				A Wilson	3/10/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009	
Barium	29	μg/L	2.5	5	M Pattanayek	3/10/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009	
Cobalt	0.08J	μg/L	0.04	1	M Pattanayek	3/10/2009	
Lead	υ	μg/L	0.10	1	M Pattanayek	3/10/2009	
Manganese	2.8	μg/L	0.42	1	M Pattanayek	3/10/2009	
Selenium	· U	μg/L	1.3	5	M Pattanayek	3/10/2009	
Thallium	0.05J	μg/L	0.03	1	M Pattanayek	3/10/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009	

TEST: Mercury	ME.	THOD: EPA 24	5.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	3/10/2009	

J - Estimated value between MDL and MQL

**MDL - Method Detection Limit** 

MQL - Method Quantitation Limit

N00004245004

**Project Name:** 

Sample Description:

**ROCKWOOD WTP** 

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

03/09/2009 11:25 JUSTIN FISHER

Sampler's Name: County:

ROANE - 73

Sample Matrix:

ROANE - 7

EFO: Sampling Agency:

Knoxville

Billing Code: Send Report To: TDEC-DWS 327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

**Priority Date:** 

Date/Time Received:

03/09/2009 13:10

Received By:

P D Wilson

**Field Determinations** 

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Digestion Metals	MET	HOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	03/10/2009				A Wilson	3/10/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Arsenic	U	μg/L	0.93	5	M Pattanayek	3/10/2009	
Barium	27	μg/L	2.5	5	M Pattanayek	3/10/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	3/10/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	3/10/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	3/10/2009	
Cobalt	0.11J	μg/L	0.04	1	M Pattanayek	3/10/2009	
Lead	0.14J	μg/L	0.10	1	M Pattanayek	3/10/2009	
Manganese	18	μg/L	0.42	1	M Pattanayek	3/10/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	3/10/2009	
Thallium	0.03J	μg/L	0.03	1	M Pattanayek	3/10/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	3/10/2009	

TEST: Mercury METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.13	0.2	A Wilson	3/10/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit